U.S. DEPARTMENT OF ENERGY

2006 NATIONAL SCIENCE BOWL®

SCIENCE DAY

PROGRAM

APRIL 29, 2006

Cover photographs from 2005 Hydrogen Fuel Cell Model Car Challenge.

Seminar Presenters share interesting science experiences with the high school teams at the 2005 National Science Bowl® on Saturday, April 30, 2005.

Pictured above (clockwise, from top left): Dr. Toby Horn gives the evening presentation on molecular databases on April 29, 2005; Dr. Alexander Szalay shares challenges with processing data in cosmology; and Dr. Robert Wisniewski talks about parallel computing at IBM.

U.S. DEPARTMENT OF ENERGY

2006 NATIONAL SCIENCE BOWL®

SCIENCE DAY PROGRAM

April 29, 2006

National 4-H Conference Center

Chevy Chase, MD

Sponsored by

AREVA

Seminars by Times and Locations

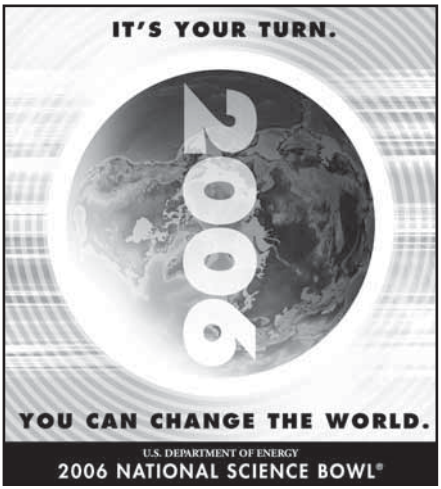
Room	Seminar
Seminar I: 9:00–10:15 a.m.	
Aiton Auditorium	*Spy Techniques That Save Lives* Robert Barron Facilitator: Sue Ellen Walbridge
Seminar II: 10:30–11:45 a.m.	
America	*The Lost Dinosaurs of Egypt* Dr. Joshua B. Smith Facilitator: Debra Halliday
Clover	*10 Things About the Future That Will Rock Your World* Stephen Petranek Facilitator: Bob Kuech
Idaho	*BioBriefcase* Dr. Timothy J. Shepodd Facilitator: Ray Ng
Illinois	*21st Century Skills for 21st Century Careers* John Sargent Facilitator: Michael McGinnis
Iowa	*Exploding Stars on Supercomputers* Dr. Bronson Messer Facilitator: Dirk Shulund
Missouri	*Hands-On Science Activities* Facilitator: Jan Tyler
Montana	*Geophysics: More than Oil* Dr. William D. (Bill) Underwood Facilitator: Steve Woodruff
Ohio	*The Mr. Magnet Show* Paul Thomas Facilitator: Gary Cruz
Oklahoma *(Teacher Workshop)*	*Genomic Applications for the New Millennium* Marissa Mills Facilitator: Barbara Billington

Room	Seminar
Seminar III: 1:15–2:30 p.m.	
America	*The Lost Dinosaurs of Egypt* Dr. Joshua B. Smith Facilitator: Bob Kuech
Arkansas	*Toward Computational Epidemiology* Douglas Fuller Facilitator: Steve Karsjen
California	*Silicon Nanoelectronics* Jeffrey Daulton Facilitator: Steve Woodruff
Idaho	*BioBriefcase* Dr. Timothy J. Shepodd Facilitator: Annette Hoff
Illinois	*21st Century Skills for 21st Century Careers* John Sargent Facilitator: Ray Ng
Iowa	*Exploding Stars on Supercomputers* Dr. Bronson Messer Facilitator: Kari Skalicky
Missouri	*Hands-On Science Activities* Facilitator: Jan Tyler
Montana	*Geophysics: More than Oil* Dr. William D. (Bill) Underwood Facilitator: Gary Cruz
Ohio	*A Truck, a Plasma, and a Pickle* Paul Thomas Facilitator: Dirk Shulund
Oklahoma *(Open to All)*	*Genomic Applications for the New Millennium* Marissa Mills Facilitator: Debra Halliday
Car Race (front circle): 2:45–4:00 p.m.	

"It's Your Turn" to Learn from Scientists at Science Day

All participants will enjoy the plenary session in the Aiton Auditorium for Seminar I. For Seminars II and III, you can choose any of the seminars that interest you on the previous pages for each session. Teachers-only are invited to participate in the Oklahoma room for Seminar II. Students-only can participate in the Hands-on Activities in the Missouri room for Seminars II and III. Seminar topics are grouped by National Science Bowl® question subject below.

Science Day will continue with the Model Hydrogen Fuel Cell Car Challenge and the General Motors Exhibit outside in front of the J.C. Penney Building.



Want to expand your ***Astronomy***? Observe page 13.

Need to enliven your ***Biology***?
Examine pages 6, 7, 8, 11, and 18.

Faults with your ***Earth Science***?
Cross-section pages 7, 10, and 15.

Have a ***Math*** problem?
Add up the facts on pages 8 and 9.

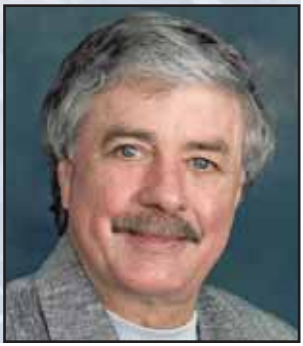
Need a lift on ***Physics***? Check out pages 15, 16, and 17.

Question on ***General Science***? Go to all of them!

Spy Techniques That Save Lives

Robert Barron

Plenary Session
Aiton Auditorium
9:00–10:15 a.m.



Wearing a mask and dying your hair is not the only way to disguise your appearance — you can cover your ears or nose with a prosthetic part. The artist behind these disguises is Mr. Robert Barron, an expert in anaplastology, which is the art and science of restoring absent parts of the body. In this seminar, he will share his experiences at the Central Intelligence Agency creating disguises for agents. After his "spooky" career, his current clientele are now regular people, but the results are still amazing. Mr. Barron will also outline the steps to create custom facial prosthetics for victims of trauma, disease, or congenital abnormalities.

Mr. Robert Barron has been working with prosthetics for three decades. His cumulative experience includes some twenty-four years of altering identities as Senior Disguise Specialist with The Central Intelligence Agency. Blending this unique background with extensive education and research in the private sector, his design, development, and creation of state-of-the-art prosthetic devices consistently challenge the status quo. He produces custom made prosthetic devices for people with conditions resulting from trauma, disease, and congenital defects. His career has centered on sophisticated laboratory procedures together with improvement and implementation of reconstructive design. Working closely with physicians and their clients while focusing on their hopes and expectations, his goal is to provide exquisitely personalized, realistic, and functional prostheses. Mr. Barron earned a degree from Southern Illinois University and also served in the Marine Corps.

The Lost Dinosaurs of Egypt

Dr. Joshua B. Smith

America
10:30–11:45 a.m.
1:15–2:30 p.m.

In the early 20th century, the Bavarian geologist Ernst Stromer directed a series of expeditions to the Upper Cretaceous-aged (~97 million years old) rocks in the Bahariya Oasis of western Egypt. Stromer's efforts produced a diverse and enigmatic assemblage of fossil vertebrate animals that included some 50 species of fish, turtles, snakes, marine reptiles, crocodyliforms, and dinosaurs. Bombs falling on Munich in 1944 destroyed almost all evidence of this assemblage. In early 1999, a reconnaissance team from the University of Pennsylvania conducted the first successful search for fossil land vertebrates in Bahariya since the WWII loss of the Bavarian collection. This and other expeditions have yielded tons of fossils of bony and cartilaginous fishes, turtles, snakes, marine reptiles, dinosaurs, bivalves, gastropods, leaves, and fruits. That the ancient Bahariya ecosystem was occupied by a very diverse biota, which contained both some of the largest herbivores known and three *Tyrannosaurus*-sized predatory dinosaurs, suggests an environment of very high biological productivity.

Dr. Joshua Smith can trace his interest in geology and paleontology to about the age of six, when he received his first dinosaur book as a gift for Christmas in 1976. Josh grew up on the edge of the Connecticut River Valley in Massachusetts and it was partly the curious red sandstones cropping out in the valley that nudged him toward geology. He began his quest to figure out those red rocks right at the source, at the University of Massachusetts at Amherst, where he earned a B.S. in geology in 1994. Josh studied paleontology at the University of Pennsylvania, where he was awarded a Sc.M. in 1997 and a Ph.D. in 2002. Josh is the author or co-author of 20 scientific articles and one book, and has conducted fieldwork in Alberta, Argentina, Connecticut, Egypt, Libya, Greece, Massachusetts, Madagascar, Mexico, Montana, Pennsylvania, Wyoming, Puerto Rico, China, and the Canadian High Arctic. He and his wife Jen are currently Assistant Professors of Earth and Planetary Sciences at Washington University of St. Louis.

Toward Computational Epidemiology:

Fighting Disease Outbreaks with the Power of Computer Science

Douglas Fuller
Arkansas
1:15–2:30 p.m.

Computational epidemiology is an emerging field within several disciplines that seeks to understand, model, predict, and combat the spread of disease in populations throughout the world using computational methods. The field encompasses concepts from biology, computer science, medicine, mathematics, statistics, and geography. Its goals include disease modeling, public health resource planning, and ultimately, the prediction and simulation of novel disease behavior to coordinate a planned response. This presentation will focus on the motivation for and growth of computational epidemiology as a field, as well as the theoretical, experimental, and political challenges it faces in today's world.

Mr. Douglas Fuller graduated from Ankeny High School in Ankeny, IA in 1999, competing for the school at the 1999 National Science Bowl®. He attended Iowa State University in Ames, IA, earning his Bachelor's degree in computer science in 2002, followed by a Master's degree in 2005. While attending Iowa State, Doug worked at DOE's Ames Laboratory in the Scalable Computing Laboratory performing research in high-performance computing and computational science. Doug currently attends the University of North Texas in Denton, TX, pursuing a Ph.D. He is also full-time staff at the University's computing center, providing high-performance computing services to university researchers. His current research areas include computational epidemiology and high-performance visualization.

Silicon Nanoelectronics: Tunneling Devices and Applications

Jeffrey Daulton

California

1:15–2:30 p.m.

Moore's law states that the complexity of an integrated circuit will double roughly every 18 months. As the electronics industry continues to push Moore's law and to drive the size of electronics to smaller length scales, the limitations become more and more apparent. While switching to more exotic materials shows promise, the bulk of current industrial infrastructure is centered on the availability, ease of processing, and low cost of silicon. Tunneling devices provide an ideal transition for extending the lifetime of silicon and allowing an increased variety of applications. In this lecture, we will examine the details of these devices which are capable of providing remarkable performance gains over current electronics. We will also examine the fabrication techniques for manufacturing these devices, including molecular beam epitaxy and electron beam lithography.

Mr. Jeffrey Daulton is a 3rd year undergraduate student majoring in electrical engineering at Ohio State University. He has been involved in silicon nanoelectronics research there since the end of his freshman year. Through his research, he has become quite familiar with the fabrication processes used in these devices, including molecular beam epitaxy, rapid thermal processing, photolithography and electron beam lithography, and plasma processing. He has also become familiar with electron microscopy and atomic force microscopy. In his spare time, he enjoys going fast on his bicycle and working on a car to go even faster. He is a member of the Buckeye Bullet team, a group that has already built an electric car that has exceeded 320 mph and is now in the design phase for the Buckeye Bullet 2. Upon the completion of his undergraduate work, he plans to relocate to a warmer climate and pursue a Ph.D. in electrical engineering with a focus on solid state materials and devices.

10 Things About the Future That Will Rock Your World

Stephen Petranek

Clover
10:30–11:45 a.m.

Stephen Petranek offers a look at the future that shocks and pleases. Examples: There will be no pilots in aircraft within 20 years; Computers will soon be more intelligent than people but only at the things people are not good at; Pollution (and climate change) will get a lot worse before it gets better; Artificial limbs will be so good that people will buy additional arms and legs so they can do more things better; Population will peak at 9.5 billion this century, then fall dramatically; All surgery will be robotic within a decade; People will take a pill to stop aging. And so on ... Find out how our world will change, in ways that will dramatically impact your life and the lives of the people around you.

Mr. Stephen Petranek has been Editor in Chief of the leading general interest science magazine Discover since January 1999, and was Editor in Chief of This Old House from 1996–1999, Senior Editor of Life from 1990–1996, and Managing Editor of the Washington Post Magazine from 1978–1990. This Old House was nominated for five national magazine awards in three years during Petranek's tenure. He also won the John Hancock financial writing award for a 40-part series he wrote on stock fraud for the Democrat & Chronicle.

BioBriefcase

Dr. Timothy J. Shepodd

Idaho

10:30–11:45 a.m.

1:15–2:30 p.m.

Sandia National Laboratories and Lawrence Livermore National Laboratory are closely collaborating to produce a briefcase-sized, multiplex, autonomous, broad-spectrum bioagent detector. This instrument, the BioBriefcase, will monitor the environment and provide "detect-to-treat" capability for civilian applications, as there is a real need for a truly portable, autonomous biological agent detector. BioBriefcase uses three simultaneous analyses: immunoassay, PCR-based DNA assay, and toxin analysis. The talk will describe the details of the BioBriefcase and the systems issue of science vs. bioterrorism.

Dr. Timothy J. Shepodd is the Manager of the Materials Chemistry Department at Sandia National Laboratories in Livermore, CA. He currently leads the Sandia efforts of the BioBriefcase project. He also leads a group of outstanding scientists who invent devices that impact our world with polymer chemistry. The group studies chemical reactions and how they affect areas of national concern. They also commercialize their inventions, such as foams and hydrogen getters for industrial and consumer product applications. Timothy has a Ph.D. in organic chemistry from California Institute of Technology and a B.S. in chemistry from the University of California at Los Angeles. He has numerous awards, publications, and patents. He lives in Livermore with his wife and two sets of twins. He enjoys refereeing soccer and also makes a hobby of spending dollar coins and two-dollar bills.

21st Century Skills for 21st Century Careers

John Sargent

Illinois

10:30–11:45 a.m.

1:15–2:30 p.m.

In today's fast-changing global economy, knowledge workers need more than just technical expertise to succeed. Mr. Sargent will discuss the skills and experience employers value and demand. In addition, Mr. Sargent will present data on past, present, and projected future trends in science and engineering occupations.

Mr. John F. Sargent is a Senior Policy Analyst for the Office of Technology Policy, Technology Administration, U.S. Department of Commerce. He conducts policy analyses and provides counsel to the Under Secretary for Technology and Assistant Secretary for Technology Policy on issues affecting technology's contribution to U.S. economic growth, competitiveness, and job creation. His primary areas of research and analysis include the development and commercialization of emerging technologies, the U.S. science and engineering workforce, and the impact of workforce globalization on U.S. competitiveness and job creation. In this capacity, Mr. Sargent represents the Commerce Department in a variety of high-level interagency for a, including the White House National Science and Technology Council's Nanoscale Science, Engineering and Technology (NSET) Subcommittee and the Subcommittee on Education and Workforce Development (SEW). He has co-authored a variety of publications in his field. Mr. Sargent holds a degree in systems engineering from the University of Virginia. He also serves on the Board of Advisors of the Converging Technologies Bar Association.

Exploding Stars on Supercomputers

Dr. Bronson Messer

Iowa
10:30–11:45 a.m.
1:15–2:30 p.m.

Supernovae are the most powerful explosions in the entire Universe. They are responsible for forming and dispersing basically all of the elements that make up both ourselves and the Earth we stand upon. They are so bright they can be seen from vast distances, and are used by observational astronomers to measure the size and shape of the Universe itself. Understanding precisely how and why they explode is a problem that is occupying the largest computer systems in the world, and is one of the most far-ranging and inclusive of all physics problems. Ohhh... never mind... enough of the justifications: blowing up stars is just plain fun!

Dr. Bronson Messer is a computational astrophysicist in the Scientific Computing Group at the National Center for Computational Science. His primary research interests are in exploding stars — supernovae, both the core-collapse type and the thermonuclear type. He was wholly educated at the University of Tennessee, receiving his Ph.D. in 2000. After a stint as a postdoctoral research associate with the Terascale Supernova Initiative at Oak Ridge National Laboratory (ORNL), he moved to the ASC Flash Center in the Department of Astronomy & Astrophysics at the University of Chicago as a research associate and deputy head of the Center's Astrophysics Group. He returned to ORNL as a staff member at the NCCS in May 2005. He also has a long history of participation in competitions involving the rapid recall of information. He has served as a guest coach for the Oak Ridge (TN) High School Science Bowl team. He was captain of the University of Tennessee college bowl team as an undergraduate, winning the Academic Competition Foundation National Championship in his senior year, and was a three-day *Jeopardy!* champion in 2003.

Hands-On Science Activities (Students Only)

Missouri
10:30–11:45 a.m.
1:15–2:30 p.m.

A Simple Balancing Act –

Determine the mass of an object using balance and a little math.

Paper Towers –

Build the tallest structure you can using paper and paper clips.

Jefferson Lab Bridge Contest –

Build a bridge using only paper and paper clips. Bridge strengths will be tested by loading washers onto them.

Geophysics: More than Oil

Dr. William D. (Bill) Underwood

Montana
10:30–11:45 a.m.
1:15–2:30 p.m.

Most geophysicists are employed in the oil business, either finding new reserves or optimizing production from known fields. However, there is much more to geophysics than oil. Geophysicists study earthquakes and are involved in engineering site investigations. Archaeological geophysicists can quickly survey sites to determine the best places to dig. Most geophysicists use seismic, sending sound waves into the ground and recording and interpreting the echoes. Seismic geophysics began with the study of earthquakes. It was earthquake geophysics that determined that Earth's outer core is liquid. And it is continuing research into earthquakes that will, one day, help us prevent disasters such as the one caused by the earthquake and tsunami in Indonesia on December 26, 2004. But, there is more to geophysics than seismic. The first practical use of geophysics was magnetic exploration for metallic minerals using a dip meter. Magnetic techniques, albeit with newer technology, are still used to discover mineral resources. Earth's gravity field is also an important geophysical study. Gravity changes can indicate caverns and potential sink holes—you wouldn't want to build too close to those!

Dr. William D. (Bill) Underwood is Manager of Professional Development for the Society of Exploration Geophysicists. A professional geologist and geophysicist, Bill has worked in petroleum exploration and development, software development, research, and education. He has applied his geoscience knowledge to finding oil and gas, archaeological investigations, geochemical research, and environmental geophysics. Bill is very active in Boy Scouts, and is on the National Jamboree staff for the Geology Merit Badge. He regularly teaches the Geology Merit Badge and the Webelos Geologist Activity Pin. Bill is also an avid photographer, particularly of birds and rocks. Bill received a B.A. in geology from Hamilton College, an M.A. in geology from the State University of New York at Buffalo, and a Ph.D. in geosciences from the University of Tulsa.

The Mr. Magnet Show:

Discovering the Beauty, Fun, and Importance of Magnets

Paul Thomas

Ohio

10:30–11:45 a.m.

Take a mesmerizing journey of discovery into the fascinating realm of magnetic phenomena. Paul Thomas, better known at MIT as Mr. Magnet, will uncover before your eyes the secret forces of magnetism. What mysterious force field holds steady an aluminum fry pan suspended in space? Some things you will see are a magnetic impulse launching Garfield into space and then a sudden forceful energy bending metal into a useful shape. What happens to magnetic material when heat is applied? Hint: heat increases kinetic energy. If you dare, discharge one million volts of electric potential holding a lightning rod in your bare hands. The Mr. Magnet show is just for the fun of it.

Mr. Paul Thomas is currently a Plasma Science and Fusion Center Technical Supervisor at MIT. After graduating from technical school, Mr. Thomas joined High Voltage Engineering Corporation, where he worked under the guidance of Robert J. Van de Graaff to develop high voltage apparatus for research. He pursued a degree in electrical engineering at Northeastern University. Mr. Thomas joined the Massachusetts Institute of Technology in 1983, where as part of a team of scientists and engineers, he supervised the integration of computer controls on a large-scale fusion experiment. Nine years later, Mr. Thomas began his educational outreach by building a series of demonstrations and bringing them in a van into Boston area schools. In the fourteen years since the first school visit, Mr. Magnet has presented the program to nearly 300,000 students and teachers. Mr. Magnet visits 60-70 schools each year in the New England region. The show has also traveled to New Orleans, Atlanta, and Washington, D.C. for special events.

A Truck, a Plasma, and a Pickle:

MIT's Traveling Plasma Lab

Paul Thomas

Ohio

1:15–2:30 p.m.

The behavior of particles of matter and light in a plasma is complex. Using a glow discharge plasma, an emission spectrometer, and such ubiquitous substances as nail polish remover, local dirt, and a pickle, students will discover, by experiment, the unique properties of the plasma state properties and how they can be used to identify elements (such as mercury or salt) in the environment. Equal parts teacher and showman, Paul explains the properties and behavior of plasma while engaging students with hands-on experiments. MIT's Traveling Plasma Lab does not teach the science of plasma, rather the fascination of it. Sparking curiosity and inspiring our young people to go on to further study is the substance of our work.

Genomic Applications for the New Millennium

Marissa Mills

Oklahoma

Teacher Workshop:
10:30–11:45 a.m.

Open to All:
1:15–2:30 p.m.

The Human Genome Project was officially completed in 2003. Many assume this marked the end of the genomic era, but things have really just begun. The DNA sequences generated in hundreds of genome projects now provide scientists with the "parts lists" containing instructions for how an organism builds, operates, maintains, and reproduces itself while responding to various environmental conditions. The U.S. Department of Energy and other government agencies are employing this information to generate new energy sources, sequester carbon in the atmosphere, trace human migration patterns, battle disease, and fight terrorism.

Ms. Marissa Mills is a science communications specialist working with Genome Management Information System (GMIS), a team who communicates genome science information to a broad audience, including researchers, health and legal professionals, educators, policy makers, and the general public. Since joining GMIS in 1995, Marissa has worked on a wide array of DOE science projects, including the Human Genome Project, the Microbial Genome Project, Genomes to Life, and the Artificial Retina Project. Marissa has an M.S. degree in nutrition from the University of Tennessee and a B.A. in journalism and mass communication from the University of North Carolina.

Hydrogen Fuel Cell Model Car Challenge

Front of J.C. Penney Hall
2:45–4:00 p.m.

Sixteen teams will participate in the fourth annual Hydrogen Fuel Cell Model Car Challenge, part of the Department of Energy's National Science Bowl®. The Challenge includes two separate events with 8 teams each – the speed race (fastest car) and the "King of the Hill" (car that climbs the highest incline). The top three teams in each event will win cash prizes for their schools. Both events will run concurrently on Science Day.

The 16 teams competing in the Model Car Challenge were selected by lottery from the pool of Science Bowl teams requesting to take part in the race. Teams of 4–5 students will design and build the small hydrogen vehicles on Friday and Saturday.

The model cars use a fuel cell to convert water into hydrogen and oxygen via a chemical reaction, which then generates electricity to power a motor that propels the car. Since no combustion was involved, the only byproducts are heat and water.

Raj Choudhury

Manager, Operations & Public Policy

General Motors Corporation

Raj Choudhury was appointed Manager of Operations & Public Policy for General Motors in 2003. He is based in Washington, DC and is responsible for GM's fuel cell vehicle demonstration activities in the Nation's Capital. He is GM's representative on the Board of the National Hydrogen Association.

Mr. Choudhury joined General Motors in 1999 as Manager for Fuel Infrastructure & Business Development at GM's Global Alternative Propulsion Center (GAPC) in Mainz-Kastel, Germany. While there, he served as program manager of the collaborative European study by GM, BP, ExxonMobil, Shell and TotalFinaElf on Well-to-Wheel Analysis of Energy Consumption & Greenhouse Gas Emissions of Advanced Fuel-Vehicle Systems.

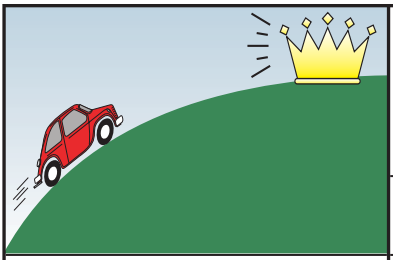
Mr. Choudhury began his professional career with Atlantic Richfield Company (ARCO). He first served as Evaluation Analyst in Alaska before transferring to Los Angeles to serve as Senior Planning Analyst in Corporate & Strategic Planning at ARCO headquarters.

Mr. Choudhury received a B.A. in mathematics from Princeton University and an MA from Stanford.

General Motors HydroGen3

The General Motors HydroGen3 marks an important milestone on the path to commercialization of fuel cell vehicles. The HydroGen3 is based on the Opel Zafira, a popular five-passenger minivan from GM's European product line. GM engineers retrofitted the Zafira for fuel cell propulsion by removing its traditional internal combustion engine, trans-mission and gasoline tank, in favor of a fuel cell "stack," electric drive system and hydrogen storage tank. The fuel cell combines hydrogen from the on-board storage tank with oxygen from the air to produce electricity and water. The electricity (nearly 100 kW) is used to power an electric motor that enables a top speed of 100 miles per hour. The end result is a traditional driving experience in a vehicle whose only emission is pure water vapor.

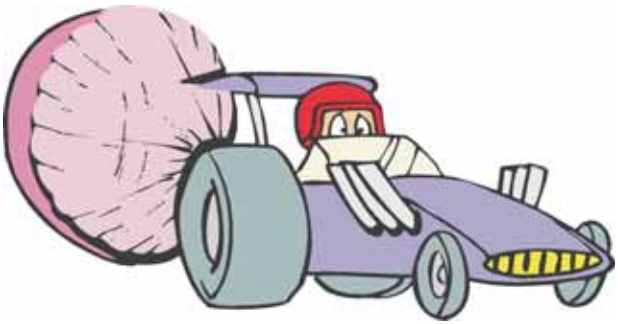
King O' the Hill

	First Angle ___ Degrees		Second Angle ___ Degrees		Third Angle ___ Degrees	
	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2
Team 1						
Team 2						
Team 3						
Team 4						
Team 5						
Team 6						
Team 7						
Team 8						

Fourth Angle ___ Degrees		Fifth Angle ___ Degrees		Sixth Angle ___ Degrees		Seventh Angle ___ Degrees		Eighth Angle ___ Degrees	
Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2

Model Hydrogen Car Speed Race

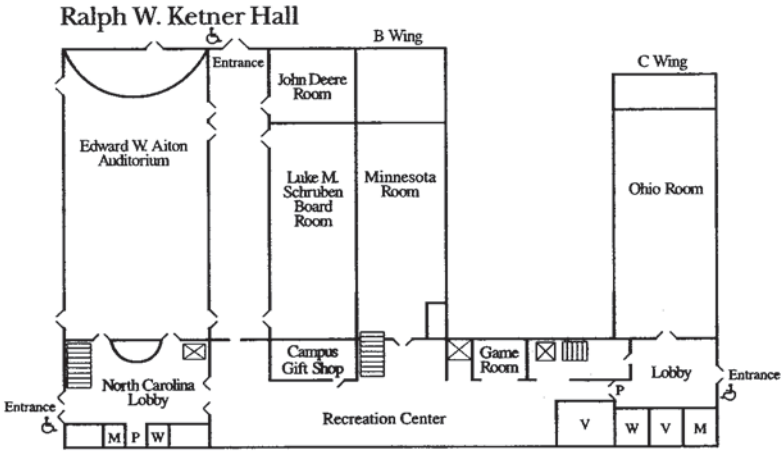
	Heat 1A	Heat 1B	Heat 2A	Heat 2B
Team 1				
Team 2				
Team 3				
Team 4				
Team 5				
Team 6				
Team 7				
Team 8				



Heat 3A	Heat 3B	Best Time	Rank

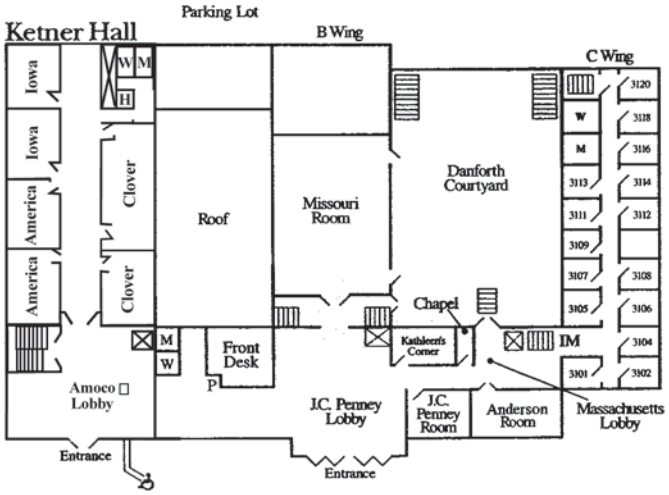
FINALS	Time	Place
Team A		
Team B		
Team C		
Team D		

Interior Campus Map



Lower Level

J.C. PENNEY HALL

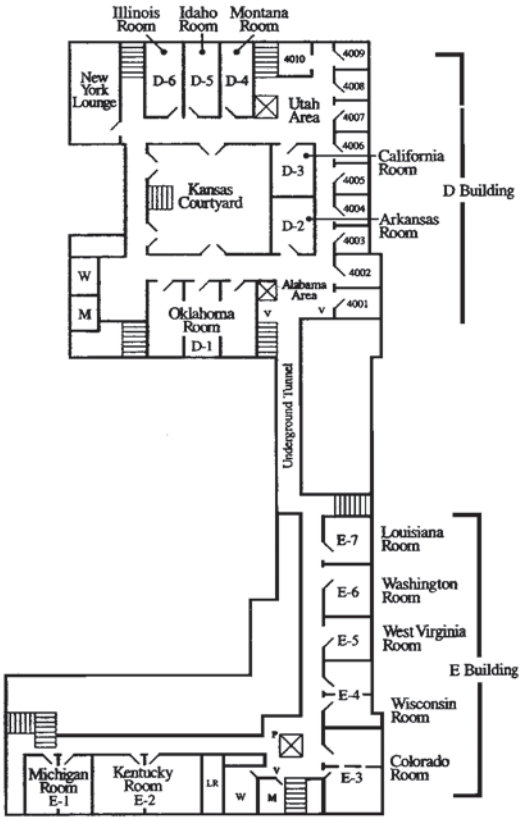


Ground Floor

FIRESTONE HALL

MCCORMICK HALL

W.K. KELLOGG HALL



Lower Level

KEY

- ELEVATORS
- STAIRS
- M W — REST ROOMS
- LR — LAUNDRY ROOM
- IM — ICE MACHINES
- V — VENDING MACHINES
- P — PHONE
- ♿ — ACCESSIBLE ENTRANCE

THANK YOU

to all our
Seminar Speakers
for sharing their
time and energy
with the participants
of the 2006
National Science Bowl.®

Pictured above (clockwise, from top left): Dr. Donald Howard talks about the Einstein's Miracle Year in 1905; Dr. Paul Burrows discusses his research in nanotechnology at DOE's Pacific Northwest National Laboratory; and students enjoying science day and working together to build a model car.

Printed with soy ink on recycled paper